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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,702	10/13/2005	Eckard Steiger	10191/4158	1388

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EXAMINER	
SINGH, HIRDEPAL	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,702	STEIGER ET AL.	
	Examiner	Art Unit	
	HIRDEPAL SINGH	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14,15,17-26 and 28-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14, 15, 17-26 and 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/30/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the communication filed on March 30, 2009 with a Request for continued examination. Claims 14, 15, 17-26 and 28-30 are pending and have been considered below.

Response to Arguments

2. Applicant's response/arguments filed March 30, 2009 includes an IDS with some foreign references that are considered, and the claims are rejected over a new ground of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mason et al. ("A Generic Multielement Microsystem for Portable Wireless Applications" Proceeding of IEEE, VOL 86, No 8, August 1998) in view of Karasawa et al. (US 2002/0051225).

Regarding claim 14:

Mason discloses a system comprising;

a housing with a variety of sensors and microcontrollers (fig1; page 1733,column1, lines 1-5);

a processor/controller connected to front end sensors through sensor bus (fig 1; page 1733,column 1, lines 2-6);

a sensor situated in the housing (for measuring temperature, humidity, acceleration i.e. inertial sensor) (page 1733, column 1, lines 4-12);

data transmission between the "smart" sensor and the processor/controller is in digital form (fig 2(d); page 1733, introduction: paragraph 1; page 1744, column 2, lines 10-14).

Mason discloses all of the subject matter as described above and further discloses that sensor data is transferred based on the data valid signal (page 1737, figure 5, and part under title "A Standard Sensor Bus") in other words when the data is without an error this signal is similar to an error signal, and also discloses the mode of operation as sleep mode and normal mode, the system wakes up in case of an interrupt (page 1735, column 2, lines 1-10), and the system keep track of shock or vibration in the sleep mode (page 1741, column 1, paragraph 3), from the above it is clear that the data transfer between sensor and processor has some signal or bit in a signal or pulse in a signal waveform to send/receive information about the above valid or invalid data and the state or mode of operation; but to further make the rejection clear another reference is brought in to show, the data transmission is configured in such a way that transmitted data has at least one error bit and at least one status bit, the at least one error bit enabling detection and identification of data transmission errors, and the at

least one status bit enabling recognition of an operating state of the at least one inertial sensor.

Karasawa, in the same field of endeavor discloses a control system and method for processing the received data where the data is transmitted between sensor and processor (figure 4; paragraphs 0061-0062) in data transmission the data has at least one error bit (abstract; paragraphs 0014 and 0088) and data represent state of the components (paragraphs 0063 and 0071).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the data transmission including error bit and status bit as suggested by Karasawa in the Mason system to identify any fault or malfunctioning or error in the data transmission and to check the state or status or mode of the peripheral devices connected to the system and the system bus in order to check the status data or mode data that enables the system processor to keep track of the operation of the devices and sensors or other hardware in the system and makes the controller to know when the devices are sending data and when the bus is idle or free so the processor can send a command when the components of the system are free and to change the mode of operation if the given component is not working properly because of overheating or some other possible problem as in the software and also advantageously prevent the system failure just because of one error in data due to a device failure or a software error and to compensate for that or to implement safety measures as to issue a warning or alarm or if the data is totally corrupted send a request to get new data, so overall improve the system performance, avoid the total failure even in the case of one

of the device is not operable and makes the control easy, by the use the portable, low power consuming i.e. mode or state changing, less interferences prone and highly efficient system.

5. Claims 14-15 and 17-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mason et al. ("A Generic Multielement Microsystem for Portable Wireless Applications" Proceeding of IEEE, VOL 86, No 8, August 1998) in view of Tetreault (US 2002/0194548).

Regarding claim 14:

Mason discloses a system comprising;

a housing with a variety of sensors and microcontrollers (fig1; page 1733,column1, lines 1-5);

a processor/controller connected to front end sensors through sensor bus (fig 1; page 1733,column 1, lines 2-6);

a sensor situated in the housing (for measuring temperature, humidity, acceleration i.e. inertial sensor) (page 1733, column 1, lines 4-12);

data transmission between the "smart" sensor and the processor/controller is in digital form (fig 2(d); page 1733, introduction: paragraph 1; page 1744, column 2, lines 10-14).

Mason discloses all of the subject matter as described above and further discloses that sensor data is transferred based on the data valid signal (page 1737, figure 5, and part under title "A Standard Sensor Bus") in other words when the data is

without an error this signal is similar to an error signal, and also discloses the mode of operation as sleep mode and normal mode, the system wakes up in case of an interrupt (page 1735, column 2, lines 1-10), and the system keep track of shock or vibration in the sleep mode (page 1741, column 1, paragraph 3), from the above it is clear that the data transfer between sensor and processor has some signal or bit in a signal or pulse in a signal waveform to send/receive information about the above valid or invalid data and the state or mode of operation; but to further make the rejection clear another reference is brought in to show, the data transmission is configured in such a way that transmitted data has at least one error bit and at least one status bit, the at least one error bit enabling detection and identification of data transmission errors, and the at least one status bit enabling recognition of an operating state of the at least one inertial sensor.

Tetreault, in the same field of endeavor discloses a system and method for computer bus error termination where the data is transmitted between sensor and processor/controller (34, 48, 62, 66 and 68 in figure 4) data transmission is configured in such a way that transmitted data has at least one error bit (paragraph 0038) and at least one status bit (paragraph 0019), the at least one error bit enabling detection and identification of data transmission errors (figure 3; paragraphs 0029 and 0038, the first bit indicate the first type of error and second bit may indicate different error), and the at least one status bit enabling recognition of an operating state of the at least one inertial sensor (paragraphs 0019, 0028, the state of the system devices i.e. working or broken and state of bus i.e. busy or idle are given as examples).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the data transmission including error bit and status bit as suggested by Tetreault in the Mason system to identify any fault or malfunctioning or error in the data transmission and to check the state or status or mode of the peripheral devices connected to the system and the system bus in order to check the status data or mode data that enables the system processor to keep track of the operation of the devices and sensors or other hardware in the system and makes the controller to know when the devices are sending data and when the bus is idle or free so the processor can send a command when the components of the system are free and to change the mode of operation if the given component is not working properly because of overheating or some other possible problem as in the software and also advantageously prevent the system failure just because of one error in data due to a device failure or a software error and to compensate for that or to implement safety measures as to issue a warning or alarm or if the data is totally corrupted send a request to get new data, so overall improve the system performance, avoid the total failure even in the case of one of the device is not operable and makes the control easy, by the use the portable, low power consuming i.e. mode or state changing, less interferences prone and highly efficient system.

Regarding claim 15:

Mason discloses all of the subject matter as described above and further discloses that the sensor bus has four lines for synchronous serial communication, and

a standard interface between processor/controller and front end sensors (Page 1737,column 1, lines 11-14; page 1734, column 2, lines 20-24).

Regarding claim 17:

Mason discloses all of the subject matter as described above and further discloses that the data transmission is bidirectional i.e. the controller/processor sends read and write instructions to the sensors (page 1734, column 1, lines 32-39, and page 1737, column 1, lines 30-40).

Regarding claim 18:

Mason discloses all of the subject matter as described above and further discloses that the data transmission triggers the testing of sensors/devices within the system (page 1742, column 1, paragraphs 1 and 2).

Regarding claim 19:

Mason discloses all of the subject matter as described above and further discloses that the data transmission triggers the sensor offset regulation, switches it to different operating state (page 1737, column 1, last paragraph; and page 1742, column 1, last paragraph).

Regarding claim 20:

Mason discloses all of the subject matter as described above and further discloses the data transmission through synchronous serial lines with a chip select/enable line (page 1737, column 1, paragraph 1and 2).

Regarding claim 21:

Mason discloses all of the subject matter as described above, but doesn't explicitly disclose that the sensor has a multichannel design. However, since Mason sensors have multiple functions as measuring acceleration and or vibration, sending and receiving data through sensor data bus, coupled to the processor/controller through chip select/enable, and connected to the power supply etc, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a multichannel sensor for the Mason system. One would have been motivated to use a multichannel design in order to optimize the disclosed communication with the processor/controller, and to enable Mason system to perform the multiple functions.

Regarding claim 22:

Mason discloses all of the subject matter as described above and further discloses that data transmission triggers the sensor from one operating state to another operating state (page 1737, column 1, paragraphs 1 and 2; and page 1742, column 1, paragraph 1 and 2).

Regarding claims 23-26:

Mason discloses all of the subject matter as described above and further discloses that this system could be used for environmental monitoring, temperature measurement, barometric pressure measurement, relative humidity measurement, and acceleration/vibration measurement, but doesn't explicitly disclose that the system is to be used as a part of a restraint system, vehicle dynamic control system, one of a sensor box and a sensor cluster, and a vehicle navigation system as claimed by the applicant.

However, the control system as a part of a restraint system, vehicle dynamic control system, one of a sensor box and a sensor cluster, and a vehicle navigation system are intended uses, but not a part of the claimed system. Therefore, little if any, patentable weight is given to the intended uses.

Furthermore, it would have been obvious to one having ordinary skill in the art at the time of invention to use the Mason system as a part of restraint system, vehicle dynamic control system, one of a sensor box and a sensor cluster, and a vehicle navigation system to use the portable, low power consuming, able to eliminate interferences and nonlinearities, and highly efficient system as a part of environmental monitoring, temperature measurement, barometric pressure measurement, relative humidity measurement, acceleration/vibration measurement, a restraint system, vehicle dynamic control system, one of a sensor box and a sensor cluster, and a vehicle navigation system or the like.

6. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mason et al. ("A Generic Multielement Microsystem for Portable Wireless Applications" Proceeding of IEEE, VOL 86, No 8, August 1998) in view of Tetreault (US 2002/0194548) as applied to claim 14 above, and further in view of Perner (US 2002/0173930).

Regarding claim 28:

Mason discloses all of the subject matter as described above and further discloses running sensor test (page 1742, column 1, paragraph 1) except for specifically

teaching that the status bit indicates running a sensor test. This is inherent that the sensor test is done by some kind of instruction by the processor which includes using a status data bit as suggested by Tetreault.

Perner, in the same field of endeavor discloses a system and method for determining operating temperature of a semiconductor component where the status bit indicates running a sensor test (paragraph 0007).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the status bit of Perner in the Mason system to identify any fault in order to prevent the system failure just because of one error due to a device failure because of temperature and to compensate for that, also to avoid getting the corrupted data from the device if it is not in proper order that helps improve system reliability avoid getting wrong information.

Regarding claim 29:

Mason discloses all of the subject matter as described above and further discloses the status bit indicates an offset regulation mode (page 1735, column 2, paragraph 1). This is inherent that the offset regulation mode is checked by some kind of mechanism by the system which includes using a status data bit as suggested by Perner.

Regarding claim 30:

Mason discloses all of the subject matter as described above except for specifically teaching the status bit indicates an initialization phase.

However, Perner in the same field of endeavor teaches a system where the data is transferred between sensor and processor/controller (paragraphs 0007 and 0018) and further discloses that status bit indicates an initialization phase (paragraph 0027).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the data transmission with a status bit as suggested by Perner in the Mason system in order to check the status of the system that enables the processor to keep track of the operation of the sensors in the system and makes the control easy as the processor can send a command when the components of the system are free and check if the system in the initialization mode which reduce the processor controller load by avoiding getting the wrong data also make the data transfer easy when it is ready.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HIRDEPAL SINGH whose telephone number is (571) 270-1688. The examiner can normally be reached on Mon-Fri (Alternate Friday Off) 8:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. S./
Examiner, Art Unit 2611
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611